mA, perform Step 3. If the current draw is 1.0 mA or less, perform Step 4.

3. Disconnect the black regulator/rectifier connector, then repeat the *Charging System Current Draw Test*. Note the following:

a. If the test results are incorrect, the ignition switch may be faulty or the wiring harness is shorted; test the ignition switch as described in Chapter Nine.

b. If the test readings are correct, replace the regulator/rectifier unit and retest.

4. Perform the *Charging Voltage Test* in Chapter Nine. Note the following:

a. If the test readings are correct, perform Step 5.

b. If the test readings are incorrect, go to Step 6.

5. Test the battery with a battery tester and note the following:

NOTE
If a battery tester is not accessible, remove the battery and take it to a dealership for testing.

a. If the test readings are correct, check for an open circuit in the wiring harness and for dirty or loose-fitting terminals; clean and repair as required.

b. If the test readings are incorrect, the battery is faulty or electrical components are overloading the charging system.

6. Test the battery charging lead and ground wire as described in *Regulator/Rectifier Wiring Harness Test* in Chapter Nine. Note the following:

a. If the test readings are correct, perform Step 7.

b. If the test readings are incorrect, check for an open circuit in the wiring harness and for dirty or loose fitting terminals; clean and repair as required.

7. Test the charging coil wires at the regulator/rectifier connector as described in *Regulator/Rectifier Wiring Harness Test* in Chapter Nine. Note the following:

a. If the test readings are incorrect, replace the alternator and retest.

b. If the test readings are correct, replace the regulator/rectifier unit and retest.

Battery Overcharging

If the battery is overcharging, the regulator/rectifier unit is faulty. Replace the regulator/rectifier unit as described in Chapter Nine.

IGNITION SYSTEM

All models are equipped with a capacitor discharge ignition (CDI) system. This solid-state system uses no contact breaker point or other moving parts.

Because of the solid-state design, problems with the capacitor discharge system are rare. If a problem occurs, it generally causes a weak spark or no spark at all. An ignition system with a weak spark or no spark is relatively easy to troubleshoot. It is difficult, however, to troubleshoot an ignition system that only malfunctions when the engine is hot or under load.

Peak Voltage Testing

Honda recommends peak voltage testing (see Chapter Nine) using the Honda peak voltage adapter (part No. 07HGJ-0020100) and a digital multimeter with an impedance of 10M ohms/DVC minimum to troubleshoot the ignition system. Resistance specifications are not available. The following troubleshooting section isolates the different ignition system components and wiring using conventional equipment. If further testing is required and the special tools are not available, refer testing to a Honda dealership.

Troubleshooting

NOTE
If the problem is intermittent, perform the tests with the engine cold, then hot. Then compare the test results.

1. Perform the following ignition spark gap test as follows:

NOTE
If an adjustable spark tester is not available, perform the spark test as described in ***Spark Test*** *in this chapter.*

a. Disconnect the plug wire.

NOTE

A spark tester is a useful tool to check the ignition system. ***Figure 9*** *shows the Motion Pro Ignition System Tester. This tool is inserted in the spark plug cap and its base is grounded against the cylinder head. The tool's air gap is adjustable, which allows the spark to be seen and heard while the intensity of the spark is tested.*

b. Adjust the spark tester so the air gap distance is 6 mm (0.24 in.).

c. Insert the spark tester into the plug cap and touch its base against the cylinder head to ground it (**Figure 9**). Position the tester so the terminals are visible.

CAUTION

If the spark plug was removed from the engine, position the spark tester away from the plug hole in the cylinder head so the spark from the tester cannot ignite the gasoline vapors in the cylinder.

d. Turn the engine over with the starter button or operate the recoil starter. A fat blue spark should jump between the spark tester terminals.

WARNING

Do not hold the spark tester or connector or a serious electrical shock may result.

e. If the spark jumps the gap and is dark blue in color, the ignition system is good. If the spark does not jump the gap, hold the spark plug cable and twist the plug cap a few times to tighten it. Then recheck the spark gap. If there is still no spark or if it jumps the gap but is yellow or white, continue with Step 2.

f. Remove the spark tester from the spark plug cap.

2. Unscrew the spark plug cap (**Figure 8**) from the ignition coil plug wire and hold the end of the wire 6 mm (0.24 in.) from the cylinder head and away from the spark plug hole as shown in **Figure 10**. Have an assistant turn over the engine. A fat blue spark should pass from the end of the wire to the cylinder head. If there is no spark, perform Step 3.

3. Test the ignition coil as described in Chapter Nine. Note the following:

a. If the ignition coil is good, perform Step 4.

b. If the ignition coil fails to pass the tests described in Chapter Nine, the ignition coil is probably faulty. However, before replacing the ignition coil, take it to a dealership and have them test the spark with an ignition coil tester. Replace the ignition coil if it is faulty and retest the ignition system.

4. Test the engine stop switch as described in *Switches* in Chapter Nine. Note the following:

a. If the switch is good, perform Step 5.

b. If the switch fails to pass the test as described in Chapter Nine, the switch is faulty and must be replaced. Replace the switch and retest the ignition system.

5. Test the ignition switch as described in *Switches* in Chapter Nine. Note the following:

a. If the switch is good, perform Step 6.

b. If the switch fails to pass the test as described in Chapter Nine, the switch is faulty and must be replaced. Replace the switch and retest the ignition system.

6. Perform the pulse generator *Peak Voltage Test* as described in Chapter Nine. Note the following:

a. If the test reading is correct, perform Step 7.

b. If the test reading is incorrect, replace the pulse generator as described in Chapter Nine.

7. If a damaged component was not identified, check the ignition system wiring harness and connectors. Check for damaged wires or loose, dirty or damaged connectors. If the wiring and connectors are good, proceed to Step 8 for early FE and TE models equipped with a sub-ICM (**Figure 14**). Proceed to Step 9 for all other models.

8. On early FE and TE models equipped with a sub-ICM (**Figure 14**), disconnect both connectors from the sub-ICM. Connect the eight-terminal gray connector directly to the ICM (**Figure 15**) and perform Step 1. Note the following:

a. If a spark occurs at the spark tester, the sub-ICM is faulty.

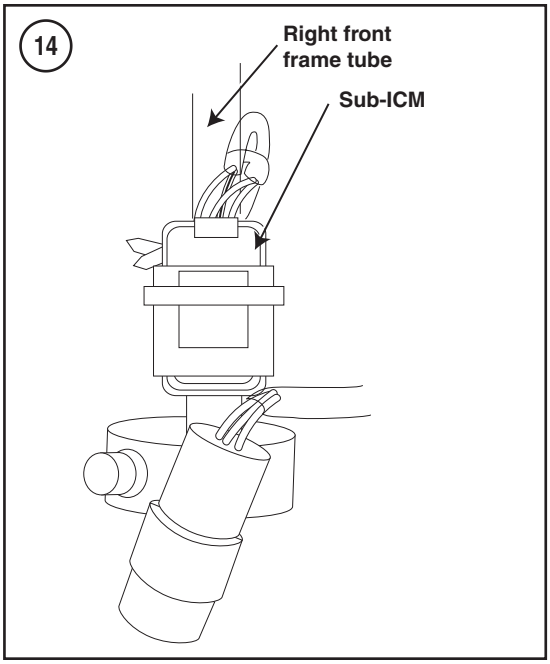
b. If no spark occurs, reattach the connectors to the sub-ICM and proceed to Step 9.

9. If the preceeding steps do not identify a faulty component, the ICM unit (**Figure 15**) is faulty and must be replaced.

NOTE

The ICM unit cannot be tested effectively using conventional equipment. Because ignition system problems are most often caused by an open or short circuit or poor wiring connections, replace the ICM only after determining that all other ignition system components are functioning properly. The ICM is expensive, and generally cannot be returned once purchased. Therefore, repeat the preceding tests to verify the condition of the ignition system before replacing the ICM.

10. Install all parts previously removed. Make sure all of the connections are free of corrosion and are reconnected properly.



LIGHTING SYSTEM

Faulty Bulbs

If the headlight or taillight bulb(s) continually burn out, check for one or more of the following conditions:

1. Incorrect bulb type. (See Chapter Nine for the correct replacement bulb types.)
2. Damaged battery.
3. Damaged rectifier/regulator.
4. Damaged ignition switch and/or light switch.

Headlight Operates Darker than Normal

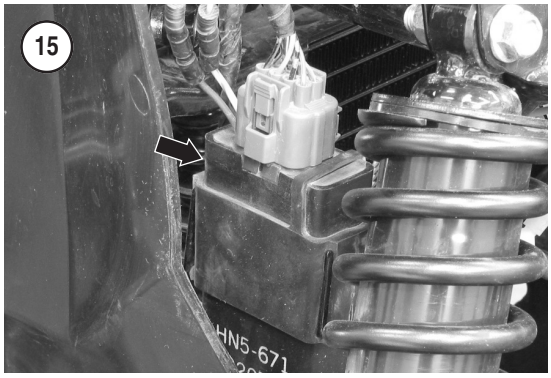
Check for one or more of the following conditions:

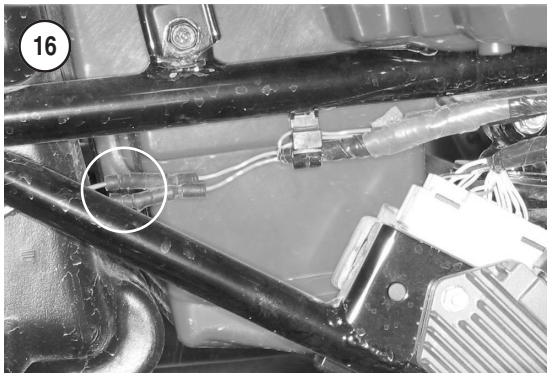
1. Incorrect bulb type. (See Chapter Nine for the correct replacement bulbs.)
2. Charging system problem.
3. Too many electric accessories added to the wiring harness. If one or more aftermarket electrical accessories have been connected to the wiring system, disconnect them one at a time and then start the engine and check the headlight operation. If this is the cause of the problem, contact the aftermarket manufacturer for more information.
4. Incorrect ground connection.
5. Poor main and/or light switch electrical contacts.

Headlight Inoperative

If the headlights do not come on, perform the following test.

1. Remove the headlight bulb (Chapter Nine).
   a. The headlight bulb has three terminals. Connect an ohmmeter between any two terminals. The reading should be zero ohms. Repeat the test between the remaining terminal and another terminal. The reading should be zero ohms. Replace the bulb if the ohmmeter indicates an open circuit between any two terminals.
   b. Connect an ohmmeter to one of the headlight socket terminals and to its mating electrical connector, then check for continuity. Repeat for the other wires and their terminals. Each reading should indicate continuity. If any reading does not meet specifications, replace the headlight socket if it cannot be repaired.
   c. If both sets of readings were correct, proceed to Step 2.
2. Check all of the light system connectors and wires for loose or damaged connections.
3. Check the main fuse as described in Chapter Nine.
4. Make sure the battery is fully charged. Refer to *Battery* in Chapter Three.
5. Switch a voltmeter to the 20 volt (DC) scale. In Step 6 and Step 7, connect the voltmeter leads to the wiring harness electrical connectors.





6. Connect the voltmeter positive lead to the headlight connector white lead and the voltmeter negative lead to the headlight connector green lead. Turn the ignition switch *on* and the dimmer switch to *low*. Note the voltmeter reading.

   a. If the voltmeter reads battery voltage, continue with Step 7.

   b. If the voltmeter does not read battery voltage; check the wiring harness from the ignition switch to the headlight socket for damage.

7. Turn the ignition switch *off*. Connect the voltmeter positive lead to the headlight connector blue/black lead and the voltmeter negative lead to the headlight connector green lead. Turn the ignition switch *on* and the dimmer switch to *high*. Note the voltmeter reading.

   a. If the voltmeter reads battery voltage, continue with Step 8.

   b. If the voltmeter does not read battery voltage, check the wiring harness from the ignition switch to the headlight socket for damage.

8. Turn the ignition switch *off* and disconnect the voltmeter leads.

Taillight Inoperative

If the taillight does not light, perform the following test.

1. Remove the taillight bulb (Chapter Nine) and disconnect the taillight socket connectors (**Figure 16**) from the wiring harness.
   a. Connect an ohmmeter to the bulb terminals. The reading should be zero ohms. Replace the bulb if the ohmmeter reads infinity.
   b. Connect an ohmmeter to a taillight socket terminal and to its mating electrical connector to check continuity. Repeat for the other wire. Each reading should be zero ohms. If any reading indicates an open circuit, replace the taillight socket if it cannot be repaired.
2. Check all of the light system connectors and wires for loose or damaged connections.
3. Check the main fuse as described in Chapter Nine.
4. Make sure the battery is fully charged. Refer to *Battery* in Chapter Three.
5. Switch a voltmeter to the 20-volt scale. In Step 3, connect the voltmeter leads to the taillight socket electrical connectors of the main wiring harness (**Figure 16**).
6. Connect the voltmeter positive lead to the taillight connector brown lead and the voltmeter negative lead to the taillight connector green lead. Turn the light switch to *on* and note the voltmeter reading.
   a. If the voltmeter reads battery voltage, continue with Step 7.
   b. If the voltmeter does not read battery voltage, check the wiring harness for damage.
7. Turn the light switch *off* and disconnect the voltmeter leads. If the voltmeter reads battery voltage in Step 4, the taillight wiring circuit is good.

COOLING SYSTEM

Air passing through the cylinder fins as well as air passing through the oil cooler cools the engine. At a preset temperature determined by the oil thermosensor, the cooling fan operates and draws air through the oil cooler. The oil thermosensor also triggers the oil temperature warning light.

Aside from possible leaks and damage to the oil cooler and oil lines, the oil cooler system is relatively troublefree. Refer to **Figure 17** for a troubleshooting chart that addresses the electrical components of the cooling system.